CENTER FOR EDUCATION AND CAREER INNOVATION: Statewide Demand and Supply Analysis

DECEMBER 2014

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STRATEGIES FOR REGIONAL DEVELOPMENT

INDIANA CAREER COUNCIL

CONTENTS

Project Overview

Project Overview

INTRODUCTION

The Center for Education and Career Innovation commissioned an analysis of statewide and regional labor market demand and talent supply in Indiana. This is the report of that analysis and a presentation of the statewide data.

The purpose of the report is to provide information to the Indiana Career Council to help its members understand the characteristics of employment demand by key economic sectors in the state and the statewide capacity of supply to meet that demand. The report shows data on the scale of demand, or job openings, by key occupational areas tied to the sectors. The report also shows data on educational credential production at the secondary and postsecondary level. These supply-side data provide a comprehensive picture of the scale and type of program completions from major educational institutions in the state. The Center for Education and Career Innovation commissioned an accompanying series of regional reports for the 11 Works Councils in the state with similar data.

These data are intended to support a discussion among members of the Indiana Career Council and statewide and regional partners. Indiana Career Council members and their partners should use local knowledge to describe, embellish, and understand the data in their context. For example, industry groups and businesses will be able to help describe and provide insights on the skills in demand in the economy. For their part, educators will be able to help describe the nature of educational programs and the outcomes.

Our hope is that these discussions, with the data, will help Indiana Career Council and regional Works Councils plan and identify priorities in the state.

Project Overview

INTRODUCTION, Cont.

There are three major sections to the report. The first section describes demand for talent in the statewide economy. The second section describes the production of credentials, or degrees, in career and technical education secondary systems as well as postsecondary colleges and universities. The final section of the report presents side-by-side data on the demand in key sectors and occupations with data on the supply of talent from secondary and postsecondary institutions. This side-by-side look at the alignment between demand and supply is a quantitative approach to display what others have remarked on anecdotally -- that it is hard for employers to fill open jobs and find the right skill sets to match requirements.

Like all data reports, this one includes a number of caveats:

All demand-side data are a combination of forecasts for job openings and real-time job postings in each occupational group. While these are some of the best and most readily available data in the market, they are not comprehensive and readers should not take them as exact measures of demand. That is, they are good measures of the scale of demand but may not capture all sources and variances of demand in the economy. Whenever possible, we have noted these qualifications in the narrative.

For their part, the supply-side data obtained from state and federal sources also contain some anomalies. For example, in secondary CTE there is variation between state-level organization and accounting of the data and district level use of the data that may lead to some differences in program identification and categorization. Nonetheless, the data as a whole accurately reflect overall program emphasis and concentration in the state. Similar to the demand data, we have noted where possible anomalies in the supply data may occur.

Project Overview

INTRODUCTION, Cont.

Finally, the labor market is complex and there are many ways students and workers gain skills and find jobs. Our approach focuses on the broad path to skill attainment and employment that is secondary and postsecondary education. These are the systems upon which the Indiana Career Council and the regional Works Councils have been asked to focus. They also are the biggest areas of public investment and produce the largest numbers of talent supply for the state. However, there are other sources of skill and talent development that feed the labor market, such as apprenticeships and non-academic professional development and industry training programs. Our report does not attempt to quantify these other sources of talent development, in part because these sources lack standardized and comparable data. So, while this analysis neither fully captures the complexity of the labor market nor all the different sources of talent supply, it focuses on those sources most relevant to the policy focus of the Indiana Career Council and Works Councils and arguably provide the biggest supply of talent to the state.

The Center for Education and Career Innovation commissioned FutureWorks, a national firm focused on research and policy development, to compile the data and lead the research for this report. CECI and FutureWorks would like to acknowledge the contributions of the Indiana Career Council and the Works Councils for the feedback, observations and assistance they gave in earlier iterations of these data. We would also like to acknowledge the assistance, cooperation and collaboration in providing data and advice from the following organizations: Indiana Department of Education, Office of Career and Technical Education; Indiana Commission for Higher Education; Indiana Department of Workforce Development; Ivy Tech Community College, Department of Institutional Research; Indiana Economic Development Corporation; Indiana Association of Career and Technical Education Directors; Central Indiana Corporate Partnership and Bio-Crossroads, Conexus, and TechPoint; and, regional workforce and economic development organizations across the state.

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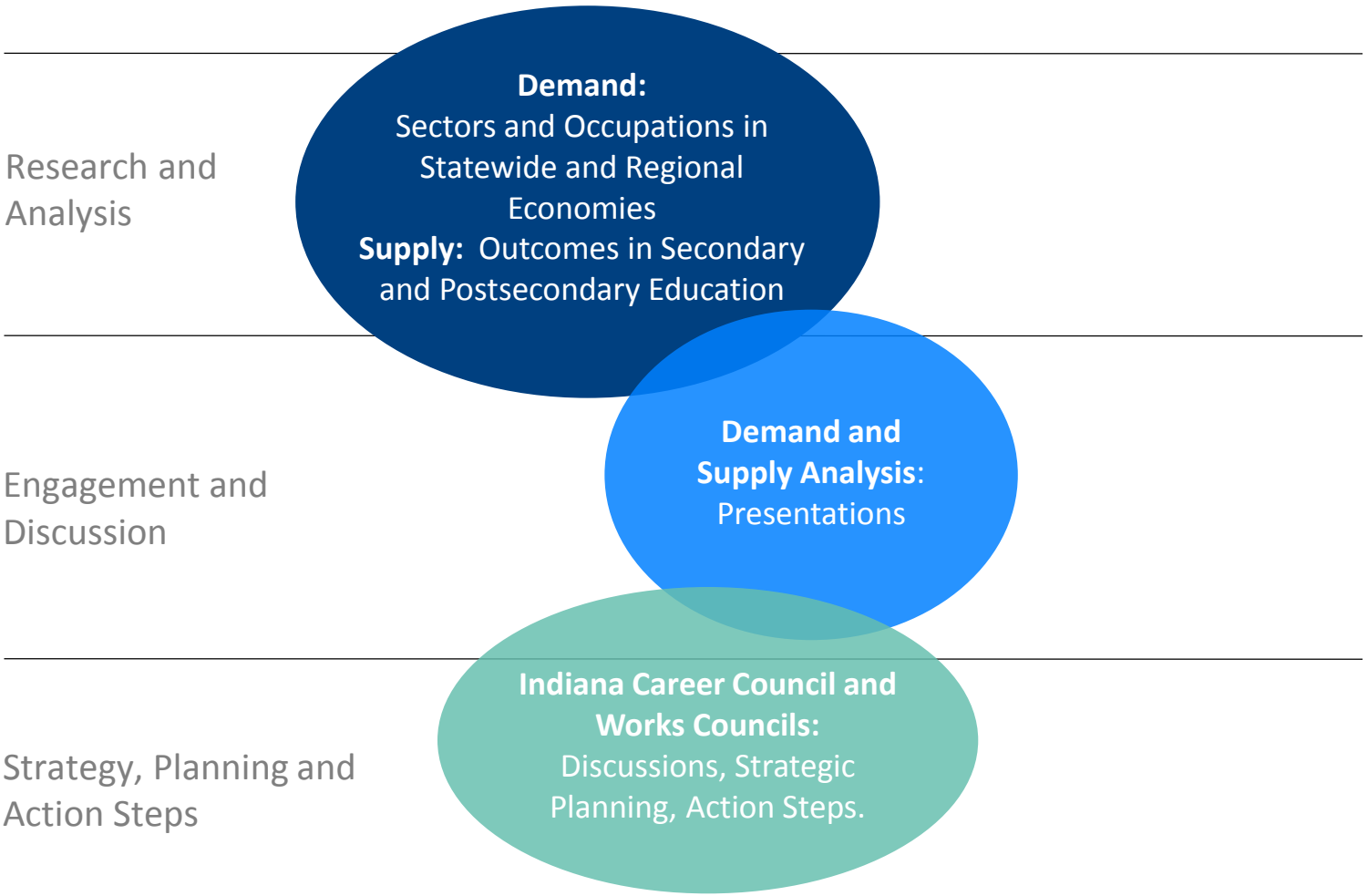
Project Overview

SUMMARY DIAGRAM OF THE PROJECT AND PROCESS FOR UTILIZATION OF THE ANALYSIS



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SECTION 1

Overview of Demand

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SECTION 1

Overview of Demand

SECTION OVERVIEW

This section presents labor market demand estimates for major occupational groups in the statewide economy. These data help give a picture of demand for key occupational groups that are important to business, individuals and the economy.

First, summary data showing demand and scale of employment for occupational groups are shown for targeted industry sectors in the state (see next page for list of targeted sectors). These target sectors were identified by the Works Councils for each region.

Second, following the summary tables, we present a list of more detailed occupation groups within the sectors. These tables also include listings of "other" occupational groups not included within the major sectors; some of them with substantial demand and some emerging in the economy.

The data presented in the tables include estimates of demand, earning potential, number of total jobs, and education typically required for each occupational group. The Indiana Career Council and its partners can use these data elements to identify and facilitate comparisons among priority occupational groups, such as:

- *occupational groups and employment in sectors that are important to current and future wealth creation in Indiana's economy;*
- *occupations with substantial demand and employment opportunities;*
- *occupations that show significant earning potential or part of a high value career path; and*
- *levels of education required among different occupational groups.*

Overview of Demand

TARGETED REGIONAL INDUSTRY SECTOR LIST

The Center for Education and Career Innovation asked the 11 Works Councils to identify key industry sectors in their regions. The following is a compilation of those industry sectors identified by the Works Councils. We used these industry sectors to organize the demand data.

- Accommodation and food services,
- Agriculture and biosciences,
- Construction/Energy,
- Education,
- Financial services,
- Healthcare,
- Information technology,
- Life sciences/Engineering,
- Manufacturing,
- Retail, and
- Transportation, distribution and logistics.

Occupations not closely tied to these industry targets are included in the occupational tables labeled “Other.”

Overview of Demand

WHAT'S INCLUDED IN THE DEMAND DATA

The demand data are shown for 96 occupational groups. These 96 groups cover all employment and occupations in the statewide economy. We organize the occupational groups by either industry sectors or, if they do not readily fit in one of these sectors, we organize them in an "other" category.

Data elements in each occupational group include:

- Demand 2013. Statewide job openings due to growth, retirements, and job postings.
- Average Hourly Wage 2012. Occupational group wages in the state.
- Total Jobs 2013. Total number of jobs in the statewide economy.
- Postsecondary Education Required 2012. National proportion of the occupation that requires some type of postsecondary education (some college, two-year degree, four-year degree, or higher).

Definitions and technical notes describing the data are in the page following the tables.

Overview of Demand

SUMMARY OF STATEWIDE DEMAND BY INDUSTRY SECTOR			
		Statewide Demand 2013	Total Jobs in Statewide Economy 2013
Accommodation and Food Services	Accommodation and Food Service Workers	22,010	355,679
Agriculture / Biosciences	Agricultural/Bio Workers	2,058	41,323
Construction / Energy	Construction and Energy Workers	4,088	136,737
Education	Educators (Teachers and Related)	7,243	163,524
Financial Services	Finance and Business Operations Specialists	12,325	113,836
	Financial and Information Clerks and Administrative Support	16,863	250,643

Overview of Demand

SUMMARY OF STATEWIDE DEMAND BY INDUSTRY SECTOR

		Statewide Demand 2013	Total Jobs in Statewide Economy 2013
Healthcare	Health Diagnosing and Treating Practitioners	13,335	108,464
	Health Technologists and Technicians	6,482	76,841
	Health Aides and Support Workers	6,760	88,586
Information Technology	Computer and IT Workers	12,122	52,489
Life Sciences / Engineering	Engineers	5,344	33,762
	Life Scientists and Technicians	2,301	23,484
	Architects and Mathematicians	451	4,828

Overview of Demand

SUMMARY OF STATEWIDE DEMAND BY INDUSTRY SECTOR			
		Statewide Demand 2013	Total Jobs in Statewide Economy 2013
Manufacturing	Skilled Production, Engineering Technology and Related	12,198	361,152
	Installation, Maintenance, and Repair Workers	9,390	130,243
Retail	Retail Workers	19,071	217,982
Transportation / Logistics	Transportation and Logistics Workers	23,641	343,374

Overview of Demand

ACCOMMODATION AND FOOD SERVICES				
Occupational Group	Demand 2013	Average Hourly Wage 2012	Total Jobs in Economy 2013	Postsecondary Education Required 2012
Food and Beverage Serving Workers	8,964	$8.94	155,565	43%
Supervisors of Food Preparation and Serving Workers	4,351	$14.58	21,405	50%
Building Cleaning and Pest Control Workers	3,361	$10.72	79,692	27%
Cooks and Food Preparation Workers	3,196	$9.64	65,761	28%
Other Food Preparation and Serving Related Workers	1,635	$8.57	25,095	30%
Supervisors of Building and Grounds Cleaning and Maintenance Workers	380	$16.41	7,076	46%
Baggage Porters, Bellhops, and Concierges	75	$10.55	584	55%
Tour and Travel Guides	47	$10.92	501	75%

Overview of Demand

AGRICULTURE AND BIOSCIENCES				
Occupational Group	**Demand 2013**	**Average Hourly Wage 2012**	**Total Jobs in Economy 2013**	**Postsecondary Education Required 2012**
Life, Physical, and Social Science Technicians*	641	$20.61	9,232	79%
Food Processing Workers*	648	$12.64	13,609	51%
Animal Care and Service Workers	381	$10.39	4,815	54%
Agricultural Workers	335	$11.94	13,049	40%
Forest, Conservation, and Logging Workers	52	$14.78	619	19%

*These occupations are also part of the Life Sciences/Engineering and Manufacturing industry sectors and, as such, are counted in both totals.

Overview of Demand

CONSTRUCTION/ENERGY				
Occupational Group	Demand 2013	Average Hourly Wage 2012	Total Jobs in Economy 2013	Postsecondary Education Required 2012
Construction Trades Workers	3,253	$21.75	110,441	23%
Supervisors of Construction and Extraction Workers	328	$27.01	11,151	#N/A
Other Construction and Related Workers	306	$18.57	9,636	32%
Helpers, Construction Trades	106	$12.84	3,299	44%
Extraction Workers	95	$20.46	2,209	21%

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Overview of Demand

EDUCATION (TEACHERS AND RELATED ONLY)				
Occupational Group	Demand 2013	Average Hourly Wage 2012	Total Jobs in Economy 2013	Postsecondary Education Required 2012
Preschool, Primary, Secondary, and Special Education School Teachers	2,847	$23.53	68,642	97%
Postsecondary Teachers	2,053	$32.82	31,927	100%
Other Education, Training, and Library Occupations	1,077	$11.73	29,625	73%
Other Teachers and Instructors	996	$13.17	26,793	87%
Librarians, Curators, and Archivists	270	$17.69	6,537	85%

Overview of Demand

FINANCIAL SERVICES				
Occupational Group	Demand 2013	Average Hourly Wage 2012	Total Jobs in Economy 2013	Postsecondary Education Required 2012
Information and Record Clerks	9,423	$14.54	95,306	66%
Business Operations Specialists	7,756	$28.51	70,485	87%
Financial Specialists	4,569	$31.24	43,351	92%
Financial Clerks	3,953	$15.68	73,451	55%
Other Office and Administrative Support Workers	3,487	$13.37	81,886	68%

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Overview of Demand

HEALTHCARE				
Occupational Group	Demand 2013	Average Hourly Wage 2012	Total Jobs in Economy 2013	Postsecondary Education Required 2012
Health Diagnosing and Treating Practitioners	13,335	$41.91	108,464	99%
Health Technologists and Technicians	6,092	$19.89	70,687	81%
Nursing, Psychiatric, and Home Health Aides	3,958	$11.05	52,406	49%
Other Healthcare Support Occupations	2,124	$14.32	32,302	70%
Occupational Therapy and Physical Therapist Assistants and Aides	678	$22.90	3,878	89%
Other Healthcare Practitioners and Technical Occupations	391	$25.49	6,155	87%

Overview of Demand

INFORMATION TECHNOLOGY				
Occupational Group*	Demand 2013	Average Hourly Wage 2012	Total Jobs in Economy 2013	Postsecondary Education Required 2012
Software Developers, Applications	2,565	$40.62	7,847	97%
Computer Occupations, All Other	2,343	$33.32	3,050	90%
Computer Systems Analysts	1,853	$33.46	8,665	95%
Computer User Support Specialists	1,807	$20.48	8,690	88%
Network and Computer Systems Administrators	866	$31.21	6,862	93%
Computer Programmers	749	$29.70	4,997	95%
Database Administrators	676	$33.01	1,683	94%
Web Developers	478	$23.88	2,422	95%
Information Security Analysts	297	$35.67	770	93%
Computer Network Architects	283	$41.96	2,031	95%
Software Developers, Systems Software	282	$42.34	3,571	97%
Computer Network Support Specialists	119	$26.92	1,699	88%

*Due to limitations in the level of detail available at the 3-digitl level for computer and IT workers under the Standard Occupational Classification (SOC) system, occupations presented in this sector are at the 6-digit level.

Overview of Demand

LIFE SCIENCES/ENGINEERING				
Occupational Group	Demand 2013	Average Hourly Wage 2012	Total Jobs in Economy 2013	Postsecondary Education Required 2012
Engineers	5,344	$36.91	33,762	96%
Life Scientists	820	$35.31	5,454	100%
Life, Physical, and Social Science Technicians	641	$20.61	9,232	79%
Physical Scientists	434	$31.87	5,386	100%
Social Scientists and Related Workers	406	$33.83	3,412	100%
Mathematical Science Occupations	263	$33.89	2,376	96%
Architects, Surveyors, and Cartographers	188	$28.80	2,452	99%

Overview of Demand

MANUFACTURING				
Occupational Group	Demand 2013	Average Hourly Wage 2012	Total Jobs in Economy 2013	Postsecondary Education Required 2012
Sales Representatives, Wholesale and Manufacturing	6,657	$32.59	38,508	79%
Other Installation, Maintenance, and Repair Occupations	5,104	$19.88	69,772	67%
Other Production Occupations	3,478	$15.22	84,567	28%
Metal Workers and Plastic Workers	2,775	$17.53	96,348	33%
Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	2,177	$18.52	36,154	58%
Assemblers and Fabricators	1,715	$14.66	89,926	44%
Electrical and Electronic Equipment Mechanics, Installers, and Repairers	1,396	$21.66	13,286	29%
Supervisors of Production Workers	1,281	$26.12	22,221	38%
Drafters, Engineering Technicians, and Mapping Technicians	943	$24.94	14,296	77%
Supervisors of Installation, Maintenance, and Repair Workers	713	$28.99	11,031	43%
Food Processing Workers	648	$12.64	13,609	51%
Textile, Apparel, and Furnishings Workers	487	$11.38	12,850	34%
Plant and System Operators	305	$23.72	7,173	23%

Overview of Demand

MANUFACTURING (CONTINUED)				
Occupational Group	Demand 2013	Average Hourly Wage 2012	Total Jobs in Economy 2013	Postsecondary Education Required 2012
Woodworkers	300	$14.29	12,119	41%
Printing Workers and Related	266	$16.60	8,044	26%

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Overview of Demand

RETAIL				
Occupational Group	Demand 2013	Average Hourly Wage 2012	Total Jobs in Economy 2013	Postsecondary Education Required 2012
Retail Sales Workers	12,717	$10.80	179,586	54%
Supervisors of Sales Workers	6,354	$19.92	38,396	65%

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STRATEGIES FOR REGIONAL DEVELOPMENT

Overview of Demand

TRANSPORTATION, DISTRIBUTION AND LOGISTICS				
Occupational Group	Demand 2013	Average Hourly Wage 2012	Total Jobs in Economy 2013	Postsecondary Education Required 2012
Motor Vehicle Operators	12,232	$16.80	100,067	56%
Material Moving Workers	5,515	$13.37	128,725	47%
Material Recording, Scheduling, Dispatching, and Distributing Workers	4,626	$14.96	87,550	68%
Supervisors of Transportation and Material Moving Workers	523	$25.11	10,519	56%
Other Transportation Workers	378	$11.82	7,338	55%
Air Transportation Workers	179	$41.23	4,080	34%
Rail Transportation Workers	119	$28.75	4,079	90%
Water Transportation Workers	70	$26.68	1,016	35%

Overview of Demand

OTHER OCCUPATIONAL GROUPS				
Occupational Group	Demand 2013	Average Hourly Wage 2012	Total Jobs in Economy 2013	Postsecondary Education Required 2012
Other Management Occupations	9,377	$28.44	70,283	84%
Other Personal Care and Service Workers	4,680	$9.62	61,146	57%
Secretaries and Administrative Assistants	3,892	$16.41	76,263	49%
Operations Specialties Managers	3,882	$44.32	32,358	86%
Advertising, Marketing, Promotions, Public Relations, and Sales Managers	3,047	$47.65	11,823	92%
Sales Representatives, Services	2,989	$27.65	37,243	84%
Art and Design Workers	2,716	$17.71	12,317	87%
Counselors, Social Workers, and Other Community and Social Service Specialists	2,504	$19.81	32,410	90%
Top Executives	1,972	$53.83	38,741	83%
Other Protective Service Workers	1,923	$13.11	26,146	58%
Personal Appearance Workers	1,742	$10.66	18,292	45%
Other Sales and Related Workers	1,670	$17.38	17,904	73%
Supervisors of Office and Administrative Support Workers	1,615	$23.70	24,643	74%

OTHER OCCUPATIONAL GROUPS				
Occupational Group	Demand 2013	Average Hourly Wage 2012	Total Jobs in Economy 2013	Postsecondary Education Required 2012
Entertainers and Performers, Sports and Related Workers	1,211	$18.08	13,920	86%
Media and Communication Workers	1,179	$21.71	12,592	93%
Lawyers, Judges, and Related Workers	1,034	$46.25	12,103	99%
Grounds Maintenance Workers	925	$11.32	25,901	25%
Supervisors of Personal Care and Service Workers	747	$16.62	4,718	66%
Entertainment Attendants and Related Workers	624	$9.33	12,360	60%
Law Enforcement Workers	603	$20.26	21,753	79%
Legal Support Workers	492	$20.13	6,900	86%
Animal Care and Service Workers	381	$10.39	4,815	54%
Religious Workers	380	$19.55	11,833	91%
Media and Communication Equipment Workers	283	$15.76	4,490	83%
Supervisors of Protective Service Workers	186	$24.86	4,820	83%
Fire Fighting and Prevention Workers	173	$21.42	7,920	83%

DEFINITIONS AND TECHNICAL NOTES

The occupational groups in the tables are a category of worker and profession identified as part of the Standard Occupational Classification (SOC) system at the 3-digit level used by federal statistical agencies. To show more detail within the information technology industry sector, the data are for occupations at the 6-digit level. A list of the occupations that make up the 3-digit SOC groups can be found at http://www.bls.gov/oes/current/oes_stru.htm.

The 96 occupational groups in the tables, organized by either industry sector or in an "other" category, cover all employment in Indiana.

The demand data for each occupational group includes the following variables:

- Demand 2013. Demand is a calculation of projected annual job openings (Bureau of Labor Statistics) and real-time job postings (Burning Glass Labor Insight) for each occupational group.
- Average Hourly Wage 2012. This is the average hourly wage for the occupation in Indiana from the U.S. Bureau of Labor Statistics.
- Total Jobs 2013. This is the total number of jobs in the state in 2013 from the U.S. Bureau of Labor Statistics using data from the Quarterly Census on Employment and Wages (QCEW).
- Postsecondary Education Required 2012. This is a national proportion of the occupation that requires some type of postsecondary education (some college, two-year degree, four-year degree, or higher) in 2012 from the U.S. Bureau of Labor Statistics as reported by Burning Glass.

SECTION 2

Overview of Supply

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Overview of Supply

SECTION OVERVIEW

In this section, we present data on the credentials and degrees awarded by Indiana educational institutions with a focus on secondary Career and Technical Education (CTE) districts and postsecondary institutions at the sub-baccalaureate and baccalaureate levels. In general, these institutions comprise the core of Indiana's talent supply pipeline (see chart on following page) and are the major sources of talent development for individuals who will enter the labor market.

Secondary CTE: Secondary CTE data are presented for 'graduating seniors who are concentrators in a CTE pathway.' These data provide a picture of the scale of output and type of programming by area of concentration in the CTE system in the state as a whole.

CTE graduating senior concentrator data are from DWD. We follow the definitions and conventions used by DOE and DWD to organize data reported by school districts (see terminology page). Note that these data include CTE data reported from both Career Centers and school districts that offer CTE courses.

Postsecondary Education: Postsecondary education outcome data are shown for major academic credentials awarded by Indiana public and private colleges: short-term certificates, certificates between one- and two-years of study, associate, Bachelor's and Master's degrees. All postsecondary data are from the federal Integrated Postsecondary Education Data System (IPEDS).

Assessing the contributions of colleges and universities to the talent supply is complex. In part, that is because many colleges serve national and international markets, as well as a statewide market. Moreover, some parts of the state may be importing supply from colleges close to, but outside the state border. While we are not able to account for each nuance in the net supply, the approach we have taken offers the Indiana Career Council a very good overview of the supply available to the state from Indiana colleges and universities.

Overview of Supply

TALENT SUPPLY PIPELINE

A large majority of new employees and re-skilled workers enter careers and employment through educational institutions at the secondary and postsecondary levels.

Overview of Supply

WHAT'S INCLUDED IN THE TALENT SUPPLY

Secondary CTE Districts:

All CTE districts across the state reporting to the Indiana Department of Education and the Department of Workforce Development.

Postsecondary Public and Private Colleges:

Our sample is of 90 public and private colleges and universities in the state. A complete list of these institutions is in the appendix. Excluded are very small private technical and occupational schools and purely religious education colleges.

The appendix also includes individual institutional data for a subset of eight statewide public colleges and universities, including Ball State University, Indiana State University, Indiana University-Bloomington, Indiana University-Purdue University-Fort Wayne, Indiana University-Purdue University-Indianapolis, Ivy Tech Community College, Purdue University-Main Campus, and Vincennes University.

IMPORTANT EDUCATION TERMINOLOGY

A number of definitions of commonly used educational terminology will help the Indiana Career Council interpret the data presented in this section. The terminology includes:

Secondary Career and Technical Education:

-Secondary CTE *Senior Concentrator*: A senior student, prepared to graduate, who has completed the requirements of at least 6 credits of coursework for inclusion in a CTE pathway concentration.

-Secondary CTE *Pathway*: A group of courses related to a technology or occupational field that is recognized and approved by the US Department of Education and also by Indiana Department of Education.

Postsecondary Education:

-Post Secondary *Certificate Less than One Year of Study*: An academic certificate of less than 30 credits.

-Post Secondary *Certificate of One to Two Years Study*: An academic certificate of more than 30 credits but less than an Associate Degree.

-Post Secondary *Associate Degree*: An academic degree of approximately 60 to 68 credits of coursework.

SECTION 2A

Overview of Secondary CTE Supply

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Overview of Secondary CTE Supply

GRADUATING SENIORS WITH A CTE CONCENTRATION IN A PATHWAY

In the following table and charts we describe the total numbers and areas of concentration of graduating senior CTE concentrators in educational pathways in Indiana. Here, we focus on the graduating seniors as measures of institutional outcomes since these seniors will compete their secondary education and enter employment or additional education. In a subsequent section, we will describe the alignment of these graduating senior concentrators and their areas of concentration with labor market demand in the statewide economy.

Senior concentrators are students in their final year of high school who have a concentration in a CTE pathway. A senior concentrator will almost always be counted in only one pathway. DWD identifies 'would be graduating seniors' as students who are eligible to graduate at the end of an academic year. These are students who will graduate and then enter employment, postsecondary education, or some other status. Because these data are for 2013, follow up records of employment or entry into postsecondary data are not yet available.

The most important purpose of the data presented here is to describe the pathways in which graduating students are concentrating and the relative scale of their choices as a whole. In aggregate, graduating senior concentrators represent the annual total CTE output of the state's CTE system. This is one significant measure of the supply of talent going into the labor market from the CTE system.

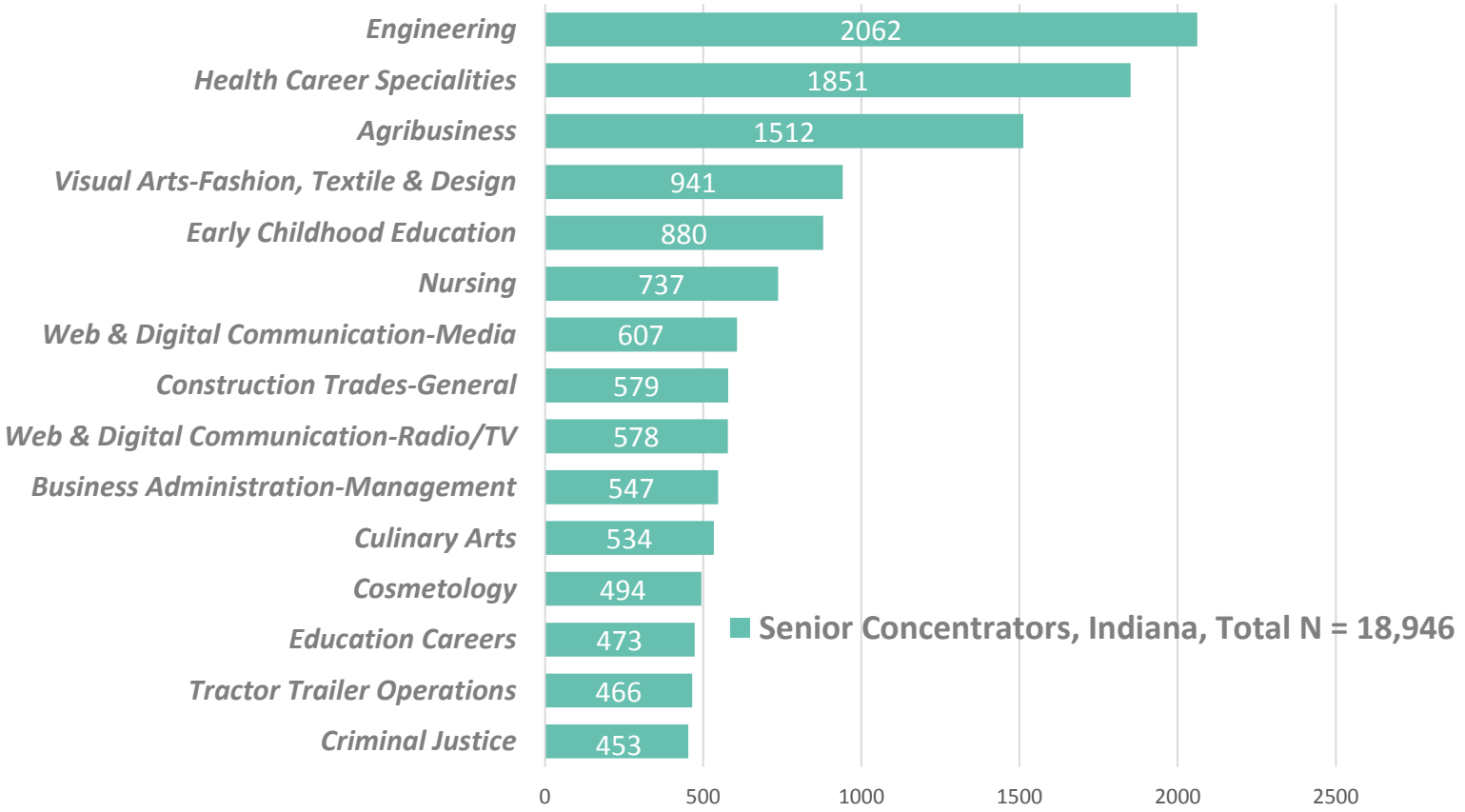
DOE and DWD identify about 50 pathways in several occupational clusters for concentrators. The next page shows the current configuration of clusters and their respective pathways.

Overview of Secondary CTE Supply

CTE Cluster	CTE Pathway - Focus
Agriculture	Agribusiness
	Horticulture & Landscape
	Life Sciences-Animal Science
	Life Sciences-Food Science
	Life Sciences-Natural Resources
	Life Sciences
Architecture & Construction	Facilities-Building and Facilities Management
	Facilities-Facility Maintenance
	Facilities-Facilities Management
	Construction Trades-General
	Construction Trades-Electrical
	Construction Trades-Heavy Equipment
	Construction Trades-HVAC
	Drafting and Design-Architectural
	Drafting and Design-Mechanical
Arts, AV Technology and Communication	Visual Arts-Photography
	Visual Arts-Fashion, Textile & Design
	Visual Arts-Visual Communication
	Web & Digital Communication-Media
	Web & Digital Communication-Radio/TV
Business and Marketing	Business Administration-Accounting
	Business Administration-Management
	Business Administration-Entrepreneurship
	Business Administration-Hospitality
	Business Administration-Marketing
	Business Administration-Sports/Entertainment
Education and Training	Early Childhood Education
	Education Careers
Health Science	Biomedical
	Biotechnology
	Dental
	Dietetics & Nutrition Science
	Health Career Specialties
	Nursing
	Veterinary
Hospitality & Human Services	Cosmetology
	Culinary Arts
	Hospitality Management
	Human & Social Services
Information Technology	PC Networking & Support-Networking
	PC Networking & Support-PC Support
	PC Programming
Manufacturing & Logistics	Advanced Manufacturing
	Electronics
	Engineering
	Logistics & Supply Chain Management
	Machine Tool
	Welding
Public Safety	Criminal Justice
	EMT/Paramedic
	Fire & Rescue
Transportation	Automotive Collision Repair
	Automotive Technology
	Aviation
	Diesel Services Technology
	Recreation & Mobile Equipment
	Tractor Trailer Operations

Overview of Secondary CTE Supply

INDIANA'S TOP 15 CTE CAREER PATHWAYS BY NUMBER OF GRADUATING SENIOR CONCENTRATORS, 2013



*Source: Indiana Department of Workforce Development, Data Provided, 2014. *Chart does not include 'Unspecified Pathway' concentrators.*

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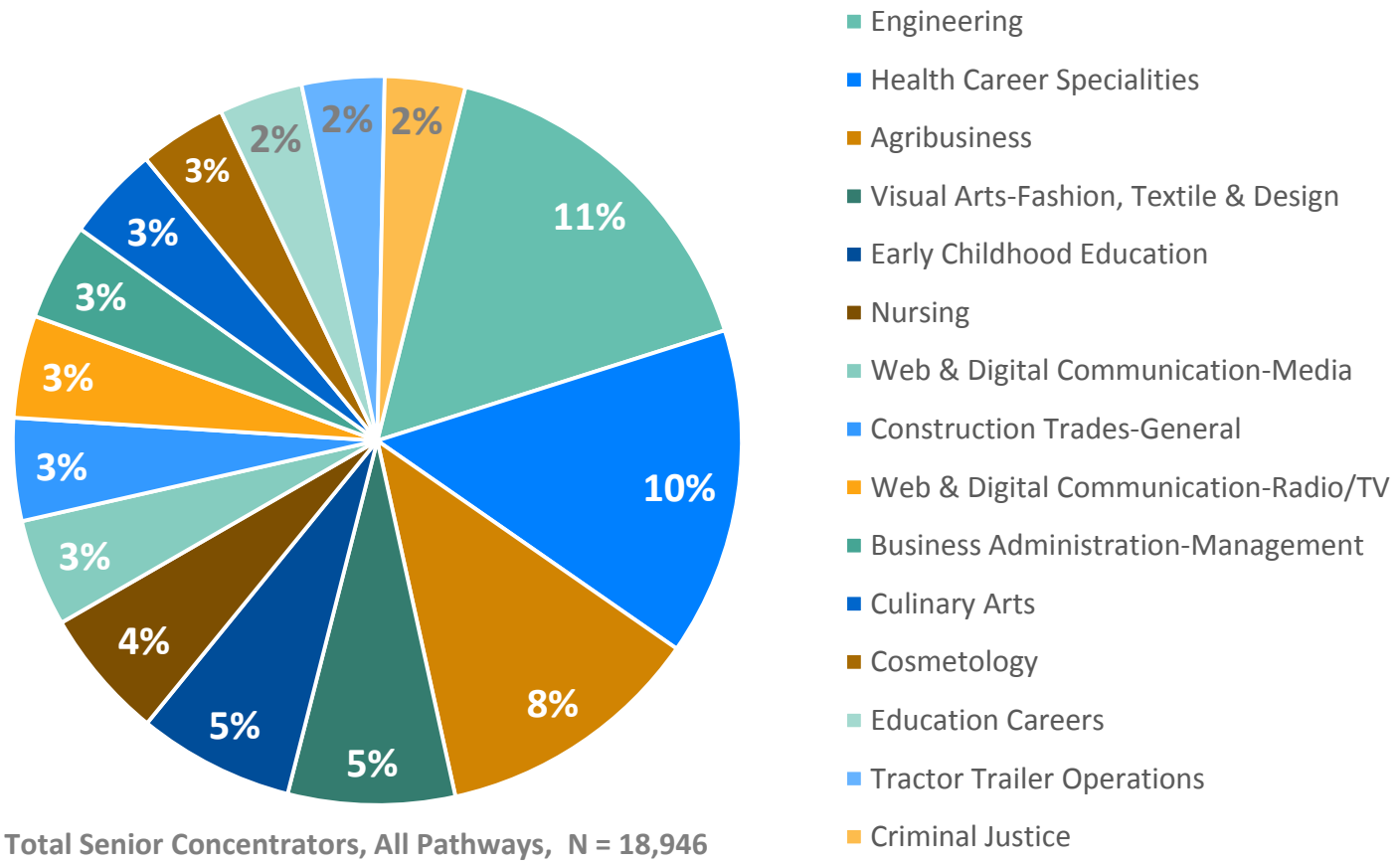
Overview of Secondary CTE Supply

TOP PROGRAMS OF STUDY, CTE CAREER PATHWAYS BY TOTAL PERCENTAGE OF ALL GRADUATING SENIOR CONCENTRATORS, 2013



Total Senior Concentrators, All Pathways, N = 18,946

Source: Indiana Department of Workforce Development, Data Provided, 2014. *Chart does not include 'Unspecified Pathway' concentrators

Overview of Secondary CTE Supply

INDIANA CTE GRADUATING SENIOR CONCENTRATORS BY PATHWAY, 2013

Pathway	Seniors	Pathway	Seniors	Pathway	Seniors	Pathway	Seniors
Engineering	2062	Tractor Trailer Operations	466	Business Administration-Accounting	205	Business Administration-Marketing	111
Health Career Specialties	1851	Criminal Justice	453	Life Sciences-Natural Resources	201	PC Networking & Support-PC Support	109
Agribusiness	1512	Welding	382	Hospitality Management	200	Visual Arts-Photography	98
Visual Arts-Fashion, Textile & Design	941	Horticulture & Landscape	376	Life Sciences-Food Science	190	Electronics	95
Early Childhood Education	880	Automotive Technology	337	Business Administration-Entrepreneurship	159	Business Administration-Sports/Entertainment	91
Nursing	737	Human & Social Services	326	Fire & Rescue	158	Visual Arts-Visual Communication	79
Web & Digital Communication-Media	607	EMT/Paramedic	314	Drafting and Design-Architectural	149	Diesel Services Technology	79
Construction Trades-General	579	Life Sciences-Animal Science	310	Drafting and Design-Mechanical	141	Dietetics & Nutrition Science	71
Web & Digital Communication-Radio/TV	578	Machine Tool	287	Business Administration-Hospitality	139	Life Sciences	52
Business Administration-Management	547	Veterinary	246	Automotive Collision Repair	137	Construction Trades-Electrical	52
Culinary Arts	534	PC Programming	218	Aviation	131	Recreation & Mobile Equipment	47
Cosmetology	494	Facilities-Facilities Management	216	PC Networking & Support-Networking	129	Facilities-Building and Facilities Management	27
Education Careers	473	Dental	216	Advanced Manufacturing	125	Construction Trades-HVAC	26

Source: Indiana Department of Workforce Development, Data Provided, 2014. Biotechnology and Logistics and Supply Chain Management pathways are not shown because of negligible concentrators. Table does not include 'Unspecified Pathway' concentrators.

SECTION 2B

Overview of Postsecondary Supply

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Overview of Postsecondary Supply

SECTION OVERVIEW

In this section, we present data on student completions for 90 public and private postsecondary educational institutions located in the State of Indiana. The charts that follow show the number of graduates and type of credentials awarded by certificate and degrees in the top programs of study for the state as a whole. The Indiana Career Council can use these data to identify program areas that produce the most graduates, identify the type of credentials being awarded, and compare student completions to demand in the statewide economy.

The data in the charts show the total graduates, or student completions, from these institutions by field of study. The field of study is federally defined by the Classification of Instructional Programs coding system used for U.S. colleges that disperse student financial aid.

Our sample includes Indiana public and private colleges and universities that enroll just over 450,000 students in 2013. These institutions awarded 91,540 credentials in 2013. We report completions of academic credentials from short term academic certificates to master's degrees.

Colleges and universities award a variety of credentials to students and workers in the Indiana workforce. We show data on academic, credit bearing credentials including certificates representing less than one full year of study (about 30 credits or less); certificates representing between one- and two-years of study (between 30 and about 48 credits); associate degrees, bachelor's degrees, and master's degrees. We do not include professional development and skills training certificates, non-credit programs, or industry-based certifications. Even though these programs can be important sources of talent, their data sources are not consistent and vary in terms of available access, which make their use beyond the scope of this project.

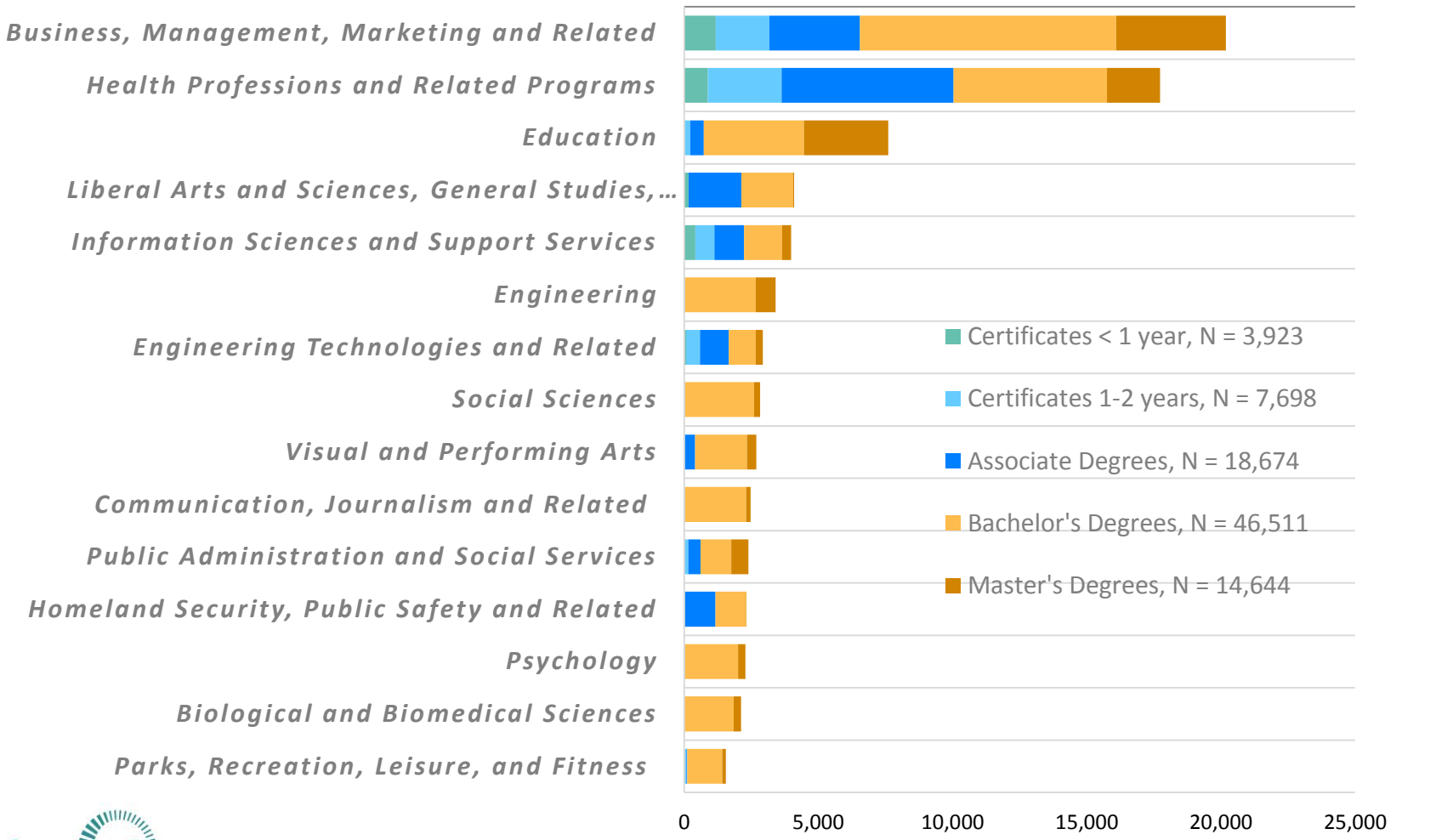
Overview of Postsecondary Supply

SECTION OVERVIEW, Cont.

The colleges and universities in our sample are limited to accredited postsecondary institutions, colleges and universities located within Indiana. Excluded from the sample are postsecondary institutions with less than 300 students enrollments, all cosmetology, massage, and therapeutic proprietary schools, purely religious training schools, and any college that is not included in the National Center for Educational Statistics database.

Overview of Postsecondary Supply

TOP 15 PROGRAMS OF STUDY, ALL 90 INDIANA POSTSECONDARY INSTITUTIONS, BY TOTAL CREDENTIALS AWARDED, 2013



Source: National Center for Education Statistics, IPEDS, 2014.

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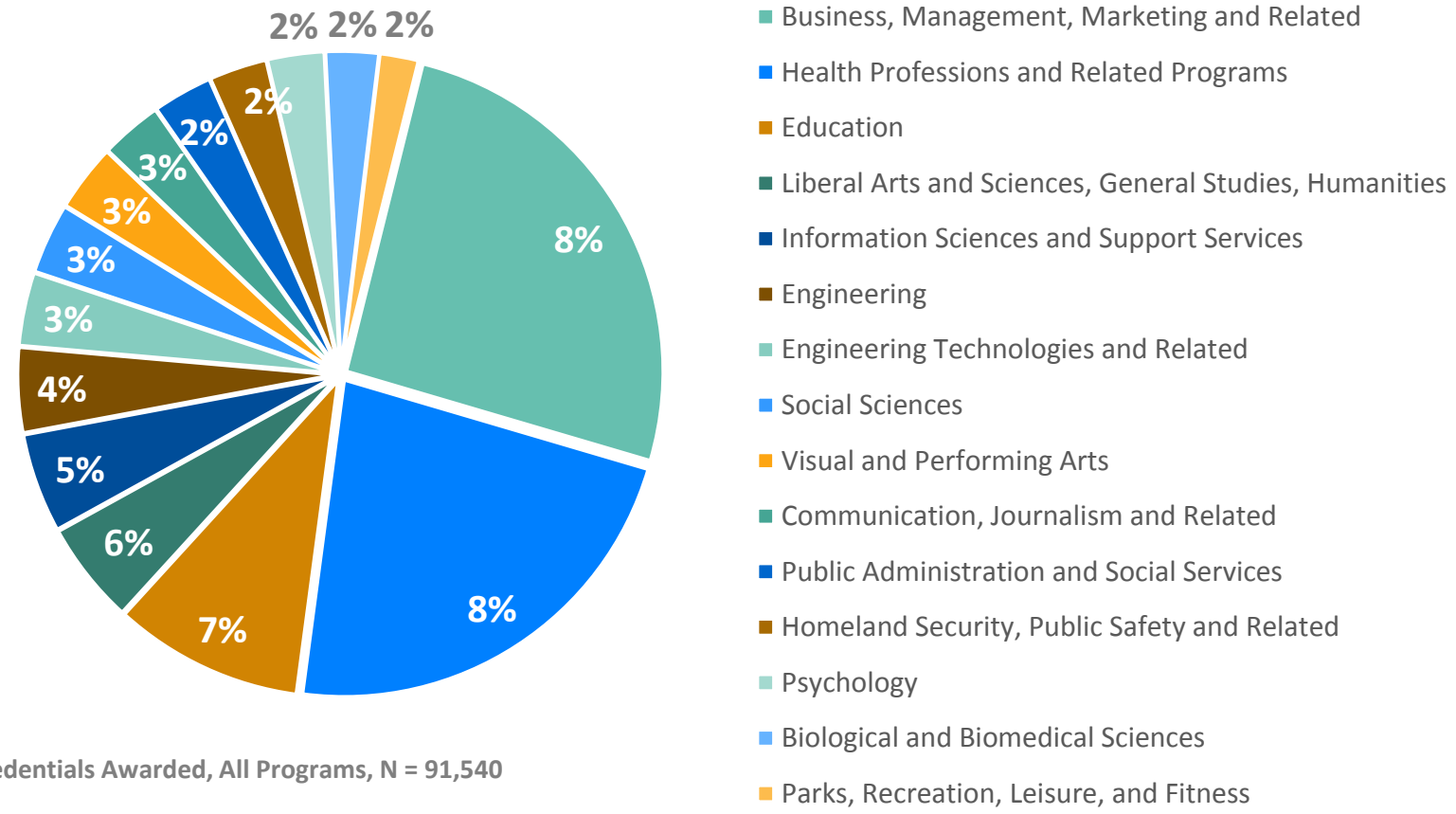
Overview of Postsecondary Supply

TOP 15 PROGRAMS OF STUDY, ALL 90 INDIANA POSTSECONDARY INSTITUTIONS, AWARDS IN FIELDS AS PERCENTAGES OF ALL CREDENTIALS AWARDED, 2013



Total Credentials Awarded, All Programs, N = 91,540

Source: National Center for Education Statistics, IPEDS, 2014.

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Overview of Postsecondary Supply

DEFINITIONS AND TECHNICAL NOTES, POSTSECONDARY INSTITUTIONS

All data on postsecondary credentials are from the U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) for 2013. The data were collected for this research in September, 2014.

Statewide data in the appendix for Ivy Tech Community College are provided by Ivy Tech Community College, Office of Institutional Research for 2012-2013.

For more detailed discussion of the employment patterns of Indiana college graduates and their likelihood of remaining employed in the state after graduation, see reports by the Indiana Business Research Center, Indiana University, such as "How Education Pays: The Work Outcomes of Indiana's Postsecondary Graduates," November, 2011, and a report commissioned by the Central Indiana Corporate Partnership, "Competitive Economic Advantage: The Opportunity to Win the Global Competition for College Educated Talent," July, 2013.

SECTION 3

Overview of Demand Supply Alignment

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STRATEGIES FOR REGIONAL DEVELOPMENT

Overview of Demand and Supply Alignment

SECTION OVERVIEW:

Our analysis of demand-supply alignment organizes data on demand across key occupational areas and aligns them with data on concentrators from CTE districts and credential output from postsecondary institutions in the state. We present a "Summary Chart of Alignment" of our analysis of demand-supply alignment in this section.

The summary chart in this section shows a high-level picture of demand supply alignment across a number of key occupational areas and is a useful starting point for discussion among members of the Indiana Career Council and with employers, educators, government, and civic leaders in the state. The chart will help these partners understand overall labor market demand and the alignment of the supply of talent to meet that demand.

The data included in the chart come from multiple sources:

- The first area is annual demand. All demand data are for 2013 based on FutureWorks calculations of EMSI's projected job openings from the U.S. Bureau of Labor Statistics in 2013 and Burning Glass Labor Insight's 2013 real-time job postings. All demand data are for the state as a whole.

- The second area is credentials awarded from all secondary CTE districts and postsecondary institutions in the state. The secondary data are Graduating Seniors with a CTE concentration reported to Indiana DOE/DWD for each school district and CTE center in the regions. Postsecondary credentials data are credentials awarded from two-year and four-year postsecondary institutions. All data on postsecondary credentials are from the U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) for 2013.

Overview of Demand and Supply Alignment

SECTION OVERVIEW, CONT.:

The regional demand supply model does not capture every pathway to employment, i.e., apprenticeships, temp agencies, etc. The academic institutional education pathway is our focus.

We recognize that there are many "non-academic" pathways into employment (e.g. construction). Determining the supply of non-academic pathways is beyond the scope of this research. Even so, in many cases, these non-academic pathways are changing. Increasingly they involve obtaining a postsecondary credential. For example, many apprenticeships are being linked to academic programs and awards of associate degrees through community colleges. Thus some production of traditionally non-academic occupational training now is being captured by data on degree awards.

To find an example of research in this area see: "Demand Study for Construction Employees" prepared by Mohr Partners Cleveland, W.E. Upjohn Institute for Employment Research, and Weber Murphy Fox for The Construction Diversity Committee, Commission on Economic Inclusion, Greater Cleveland Partnership.

Overview of Demand and Supply Alignment

Generally speaking, there appears to be more demand than supply of credentials.

Generally speaking, demand and supply approach balance.

Generally speaking, there appears to be more supply of credentials than demand.

SUMMARY CHART OF ALIGNMENT

		Demand 2013	PSE Credentials Awarded 2013	CTE Concentrators 2013	Alignment
Accommodation and Food	Accommodation and Food Service Workers	22,010	2,233	1,035	
Agriculture / Biosciences	Agricultural/Bio Workers	2,058	3,125	2,460	
Construction / Energy	Construction and Energy Workers	4,088	1,009	1,049	
Education	Educators (Teachers and Related)	7,243	7,605	1,353	
Financial Services	Finance and Business Operations Specialists	12,325	11,584	911	
	Financial and Information Clerks and Administrative Support	16,863	572		

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Overview of Demand and Supply Alignment

Generally speaking, there appears to be more demand than supply of credentials.

Generally speaking, demand and supply approach balance.

Generally speaking, there appears to be more supply of credentials than demand.

SUMMARY CHART OF ALIGNMENT

		Demand 2013	PSE Credentials Awarded 2013	CTE Concentrators 2013	Alignment
Health Care	Health Diagnosing and Treating Practitioners	13,335	9,430	737	
	Health Technologists and Technicians	6,482	3,674	216	
	Health Aides and Support Workers	6,760	3,746	1,851	
Information Technology	Computer and IT Workers	12,122	3,986	1,641	
Life Sciences / Engineering	Engineers	5,344	3,410	2,062	
	Life Scientists and Technicians	2,301	3,046	754	
	Architects and Mathematicians	451	1,024		

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STRATEGIES FOR REGIONAL DEVELOPMENT

Overview of Demand and Supply Alignment

Generally speaking, there appears to be more demand than supply of credentials.

Generally speaking, demand and supply approach balance.

Generally speaking, there appears to be more supply of credentials than demand.

SUMMARY CHART OF ALIGNMENT

		Demand 2013	PSE Credentials Awarded 2013	CTE Concentrators 2013	Alignment
Manufacturing	Skilled Production, Engineering Technology and Related	12,198	3,351	1,032	
	Installation, Maintenance, and Repair Workers	9,390	1,326		
Retail	Retail Workers	19,071	*	*	*
Transportation / Logistics	Transportation and Logistics Workers	23,641	240	1,197	

*The alignment of demand and supply is not presented for the retail sector because the occupational group of retail workers does not have a clearly defined and reasonable match with a program of study using the Classification of Instructional Program system for secondary and postsecondary supply.

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APPENDIX A

Statewide Public Two- and Four-Year Colleges

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APPENDIX A

Statewide Two- and Four-Year Colleges

OVERVIEW

This appendix presents data on student completions for a select group of public statewide postsecondary educational institutions. The following colleges and universities are included in the analysis:

- *Ball State University*
- *Indiana State University*
- *Indiana University-Bloomington*
- *Indiana University-Purdue University-Fort Wayne*
- *Indiana University-Purdue University-Indianapolis*
- *Ivy Tech Community College*
- *Purdue University-Main Campus*
- *Vincennes University*

These eight colleges and universities are shown separately because they are unique providers of talent to the Indiana labor market. They meet the following criteria:

- they are all publicly-funded institutions of postsecondary education in Indiana;
- they are commonly identified as serving students and communities across the state; and,
- they have graduate and undergraduate enrollments of at least 12,000 students.

Statewide Two- and Four-Year Colleges

OVERVIEW, Cont.

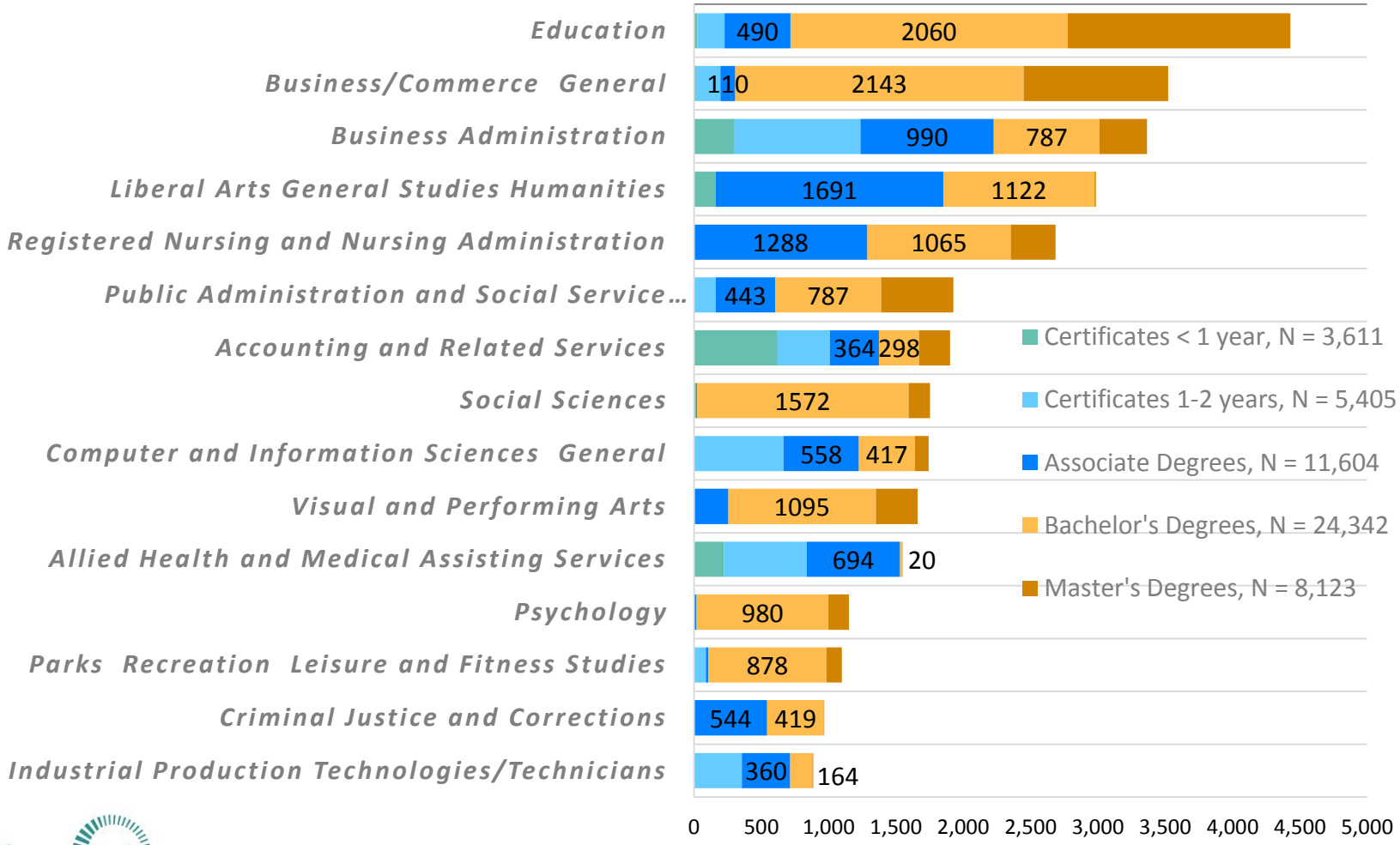
The eight public postsecondary institutions shown in this appendix enroll approximately 280,000 students, about 60 percent of the 450,000 total student body enrolled in all public and private colleges across the state. The eight public colleges awarded 53,085 credentials in 2013, ranging from short term academic certificates to master's degrees. That also represents about 60 percent of the 91,540 credentials awarded by all 90 public and private colleges and universities in the state.

The data in the following charts show the total graduates, or student completions, from these institutions by field of study. The field of study is federally defined by the Classification of Instructional Programs coding system used for all U.S. colleges that disperse student financial aid. We show the data aggregated for these statewide institutions as a whole as well as separately for each college and university. In each chart we show the completions by the top programs in terms of numbers of graduates and credentials awarded.

Note: As part of the region-by-region analysis supplied to the Works Councils, these statewide colleges were also included in the student completions for the region in which their campus is located because they are a potential source of talent for local employers in those regions.

Statewide Two- and Four-Year Colleges

TOP 15 PROGRAMS OF STUDY, 8 SELECTED INDIANA POSTSECONDARY INSTITUTIONS, BY TOTAL CREDENTIALS AWARDED, 2013



Source: National Center for Education Statistics, IPEDS, 2014. Values are given only for Associate and bachelor's degrees to help characterize scale of completions in these programs of study across the state.

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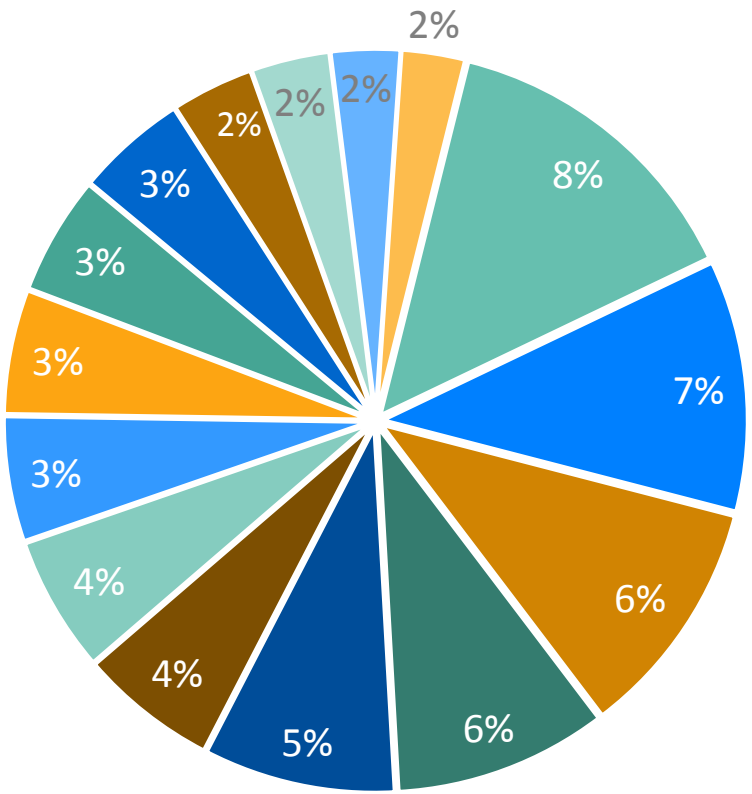
STRATEGIES FOR REGIONAL DEVELOPMENT

Statewide Two- and Four-Year Colleges

TOP 15 PROGRAMS OF STUDY, 8 SELECTED INDIANA POSTSECONDARY INSTITUTIONS, AS PERCENTAGES OF ALL CREDENTIALS AWARDED, 2013



Total Credentials Awarded, All Programs, N = 53,085

- Education
- Business/Commerce General
- Business Administration
- Liberal Arts General Studies Humanities
- Registered Nursing and Nursing Administration
- Public Administration and Social Service Professions
- Accounting and Related Services
- Social Sciences
- Computer and Information Sciences General
- Visual and Performing Arts
- Allied Health and Medical Assisting Services
- Psychology
- Parks Recreation Leisure and Fitness Studies
- Criminal Justice and Corrections
- Industrial Production Technologies/Technicians

Source: National Center for Education Statistics, IPEDS, 2014.

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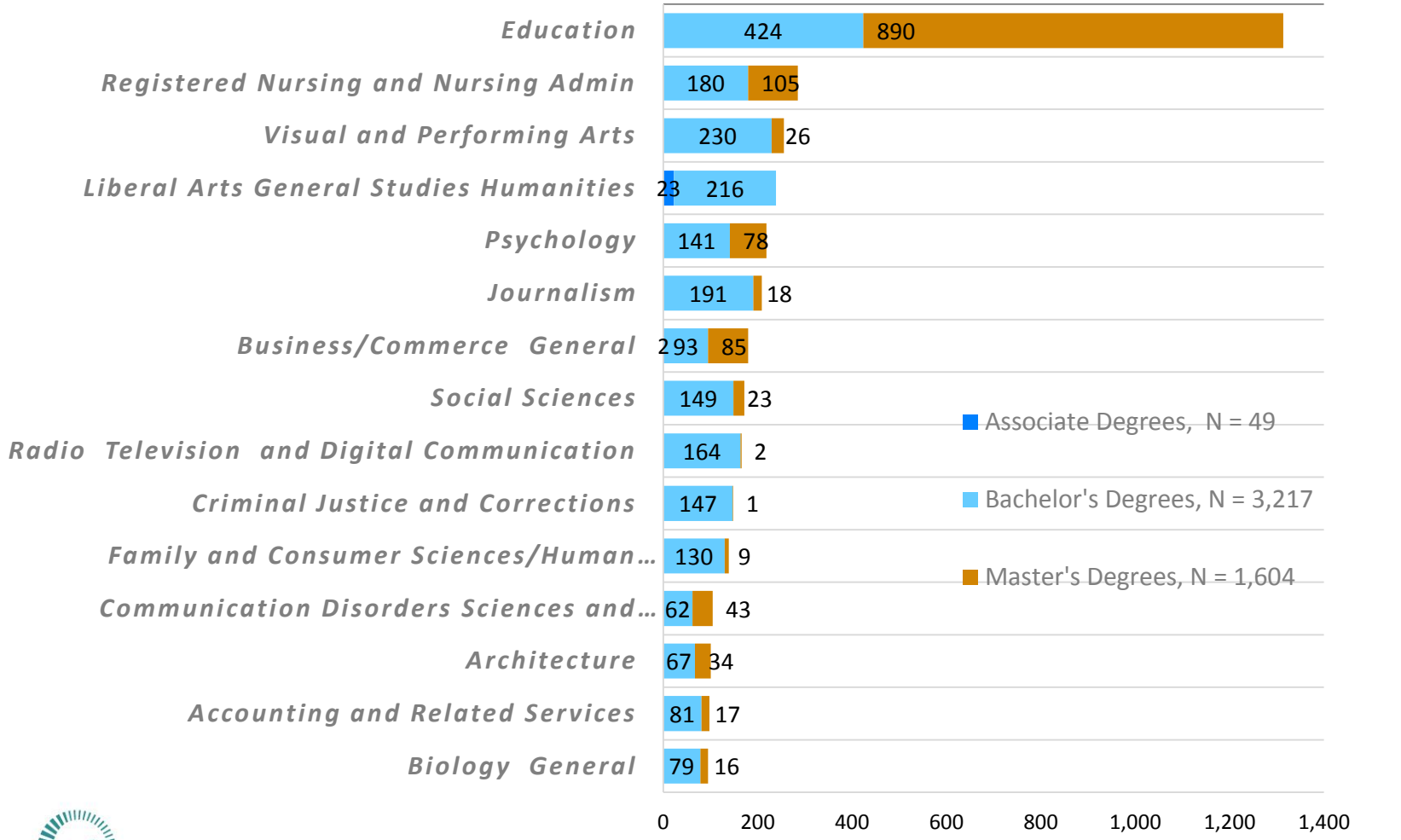
STRATEGIES FOR REGIONAL DEVELOPMENT

Statewide Two- and Four-Year Colleges

TOP 15 PROGRAMS OF STUDY, BALL STATE UNIVERSITY, BY TOTAL CREDENTIALS AWARDED, 2013



Source: National Center for Education Statistics, IPEDS, 2014.

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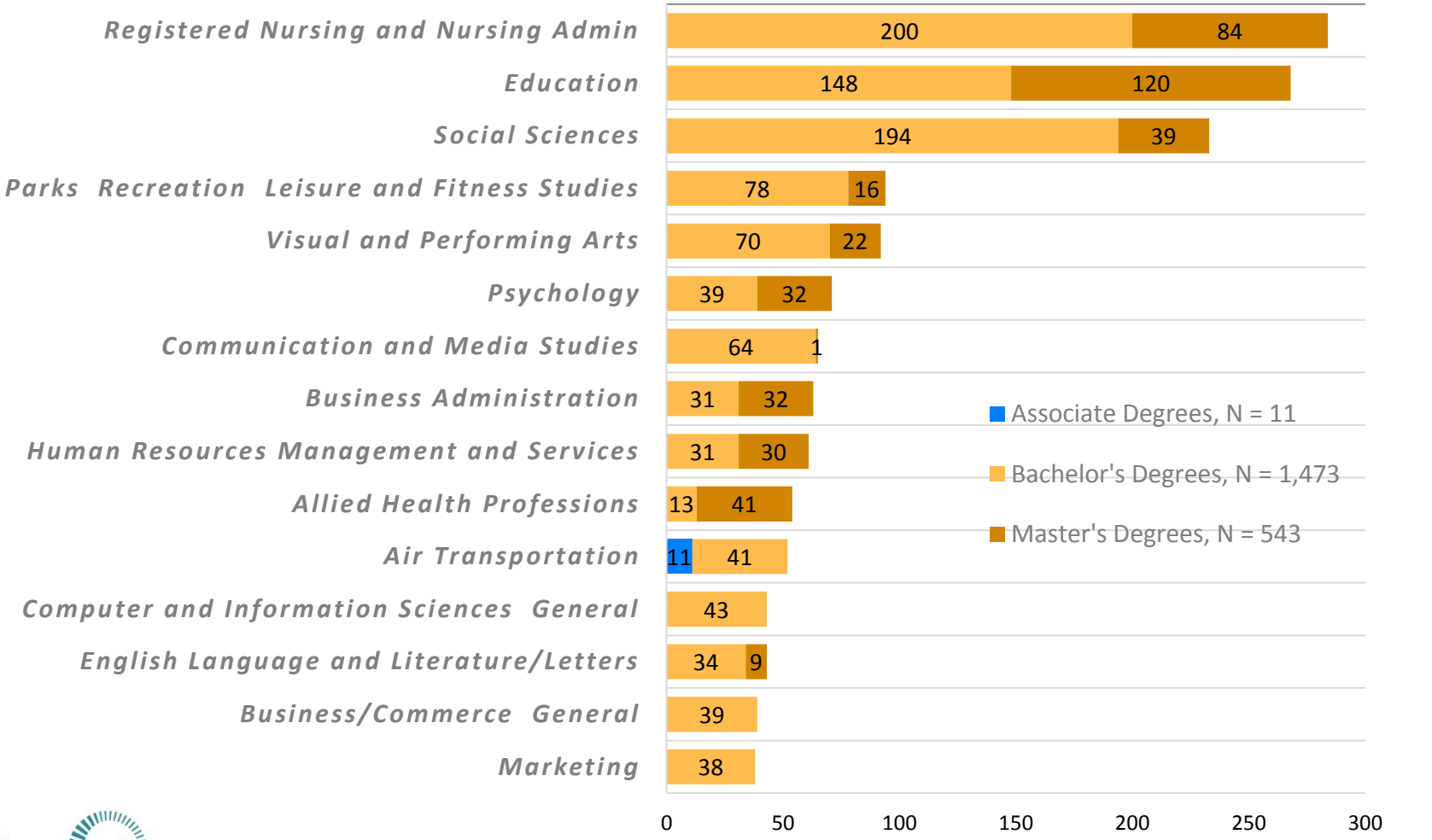
Statewide Two- and Four-Year Colleges

TOP 15 PROGRAMS OF STUDY, INDIANA STATE UNIVERSITY, BY TOTAL CREDENTIALS AWARDED, 2013



Source: National Center for Education Statistics, IPEDS, 2014.

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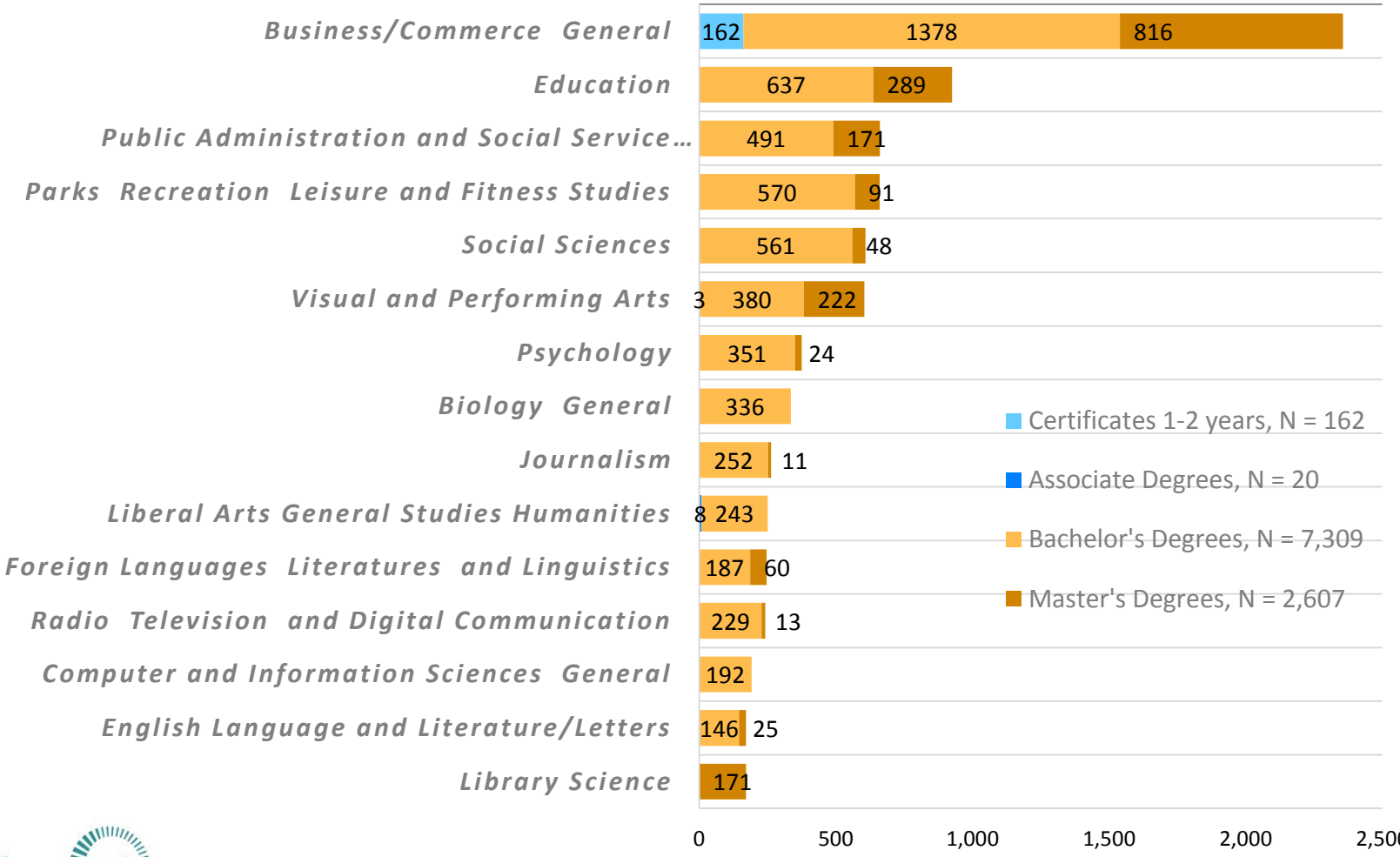
STRATEGIES FOR REGIONAL DEVELOPMENT

Statewide Two- and Four-Year Colleges

TOP 15 PROGRAMS OF STUDY, INDIANA UNIVERSITY, BY TOTAL CREDENTIALS AWARDED, 2013



Source: National Center for Education Statistics, IPEDS, 2014.

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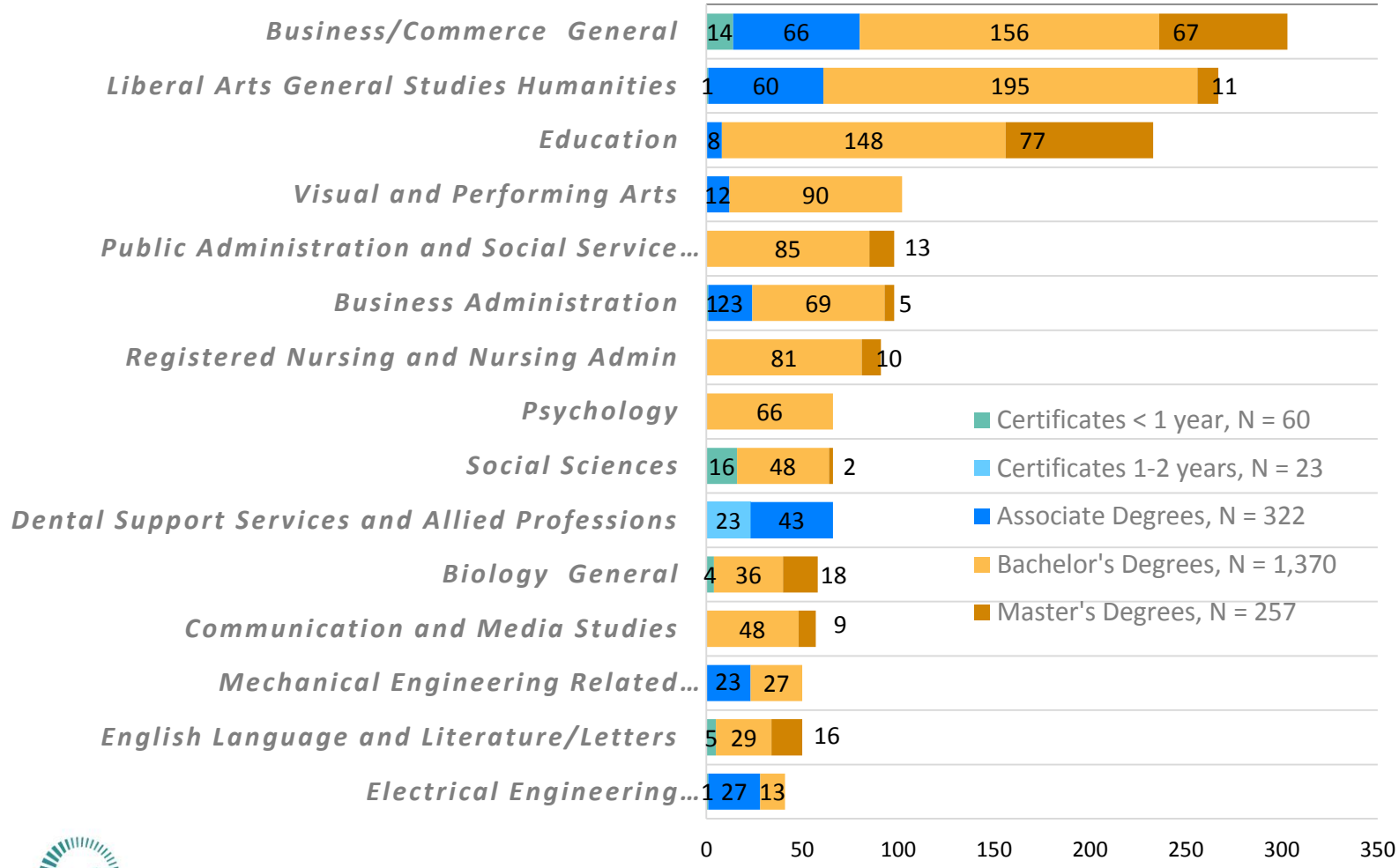
Statewide Two- and Four-Year Colleges

TOP 15 PROGRAMS OF STUDY, IUPU – FT. WAYNE, BY TOTAL CREDENTIALS AWARDED, 2013



Source: National Center for Education Statistics, IPEDS, 2014.

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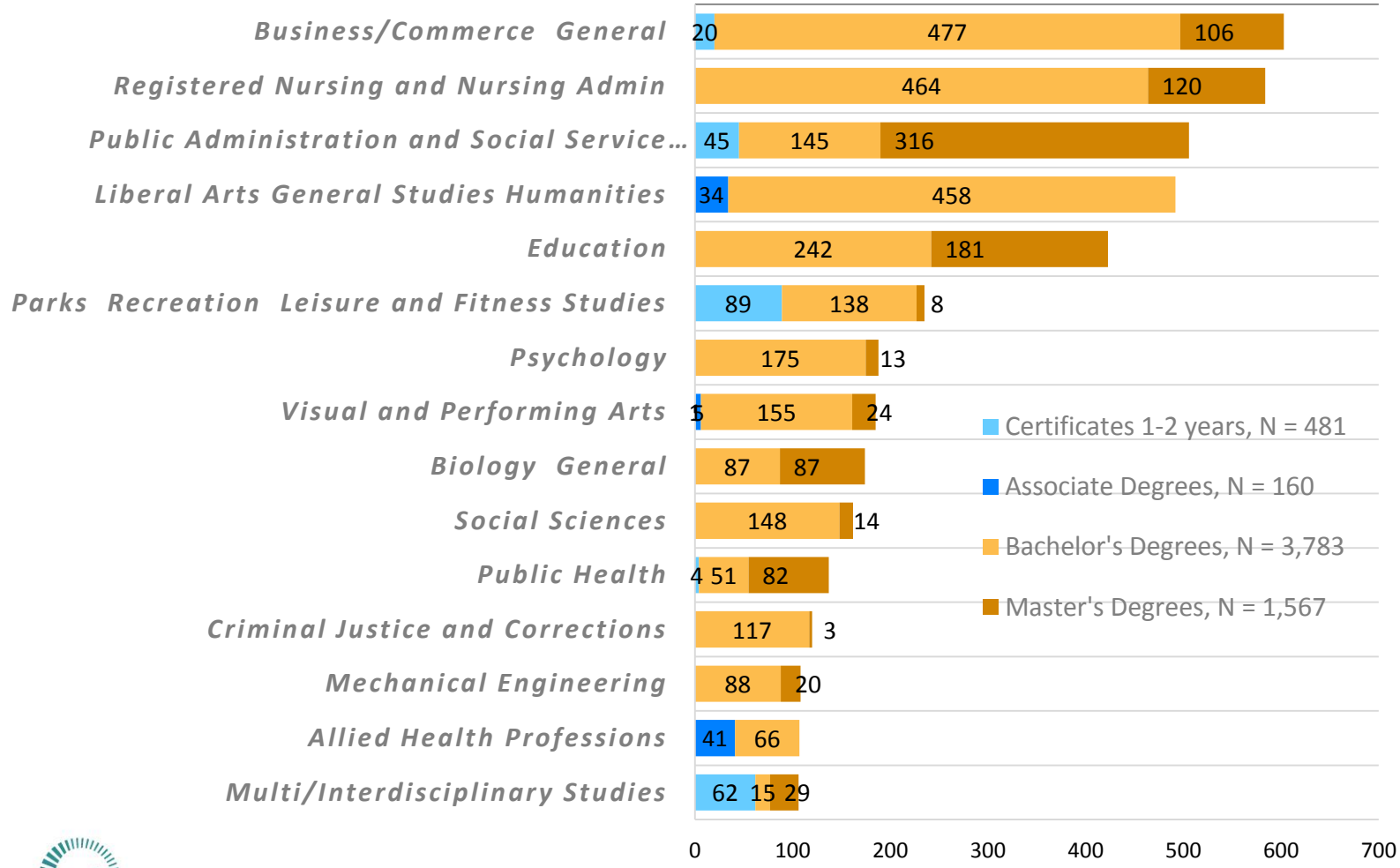
Statewide Two- and Four-Year Colleges

TOP 15 PROGRAMS OF STUDY, IUPUI - INDIANAPOLIS, BY TOTAL CREDENTIALS AWARDED, 2013



Source: National Center for Education Statistics, IPEDS, 2014.

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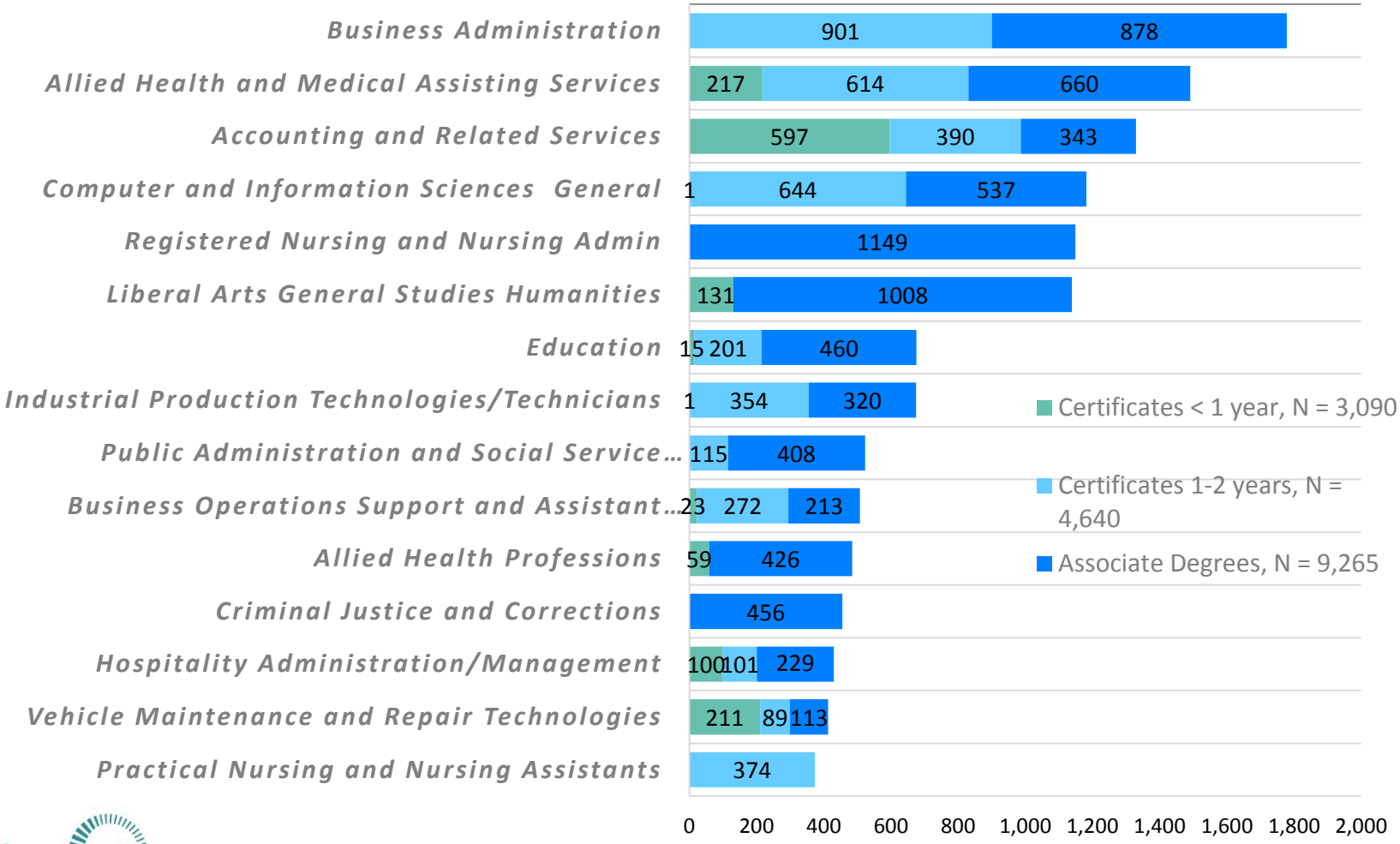
STRATEGIES FOR REGIONAL DEVELOPMENT

Statewide Two- and Four-Year Colleges

TOP 15 PROGRAMS OF STUDY, IVY TECH COMMUNITY COLLEGE, BY TOTAL CREDENTIALS AWARDED, 2013



Source: National Center for Education Statistics, IPEDS, 2014.

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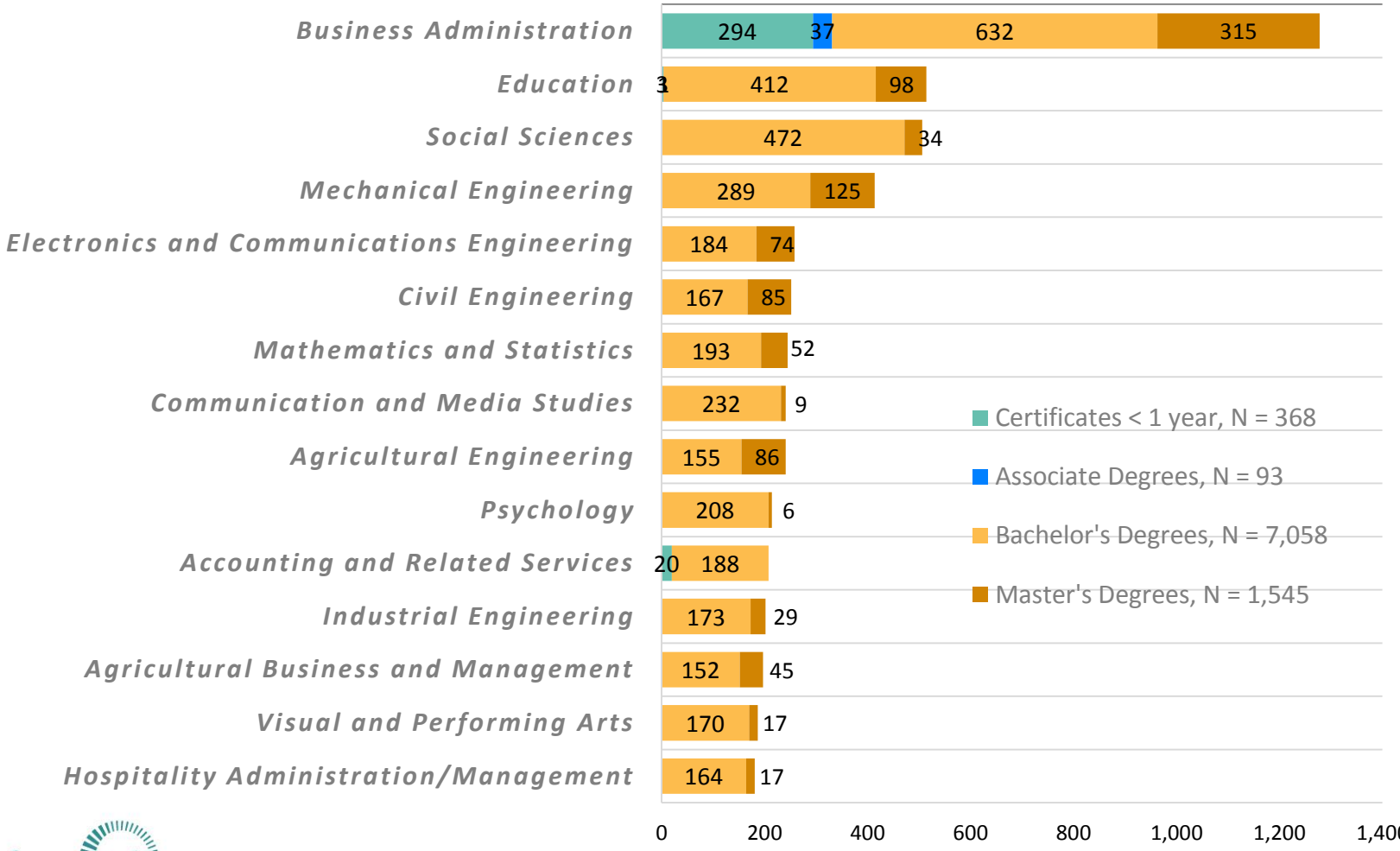
Statewide Two- and Four-Year Colleges

TOP 15 PROGRAMS OF STUDY, PURDUE UNIVERSITY, BY TOTAL CREDENTIALS AWARDED, 2013



Source: National Center for Education Statistics, IPEDS, 2014.

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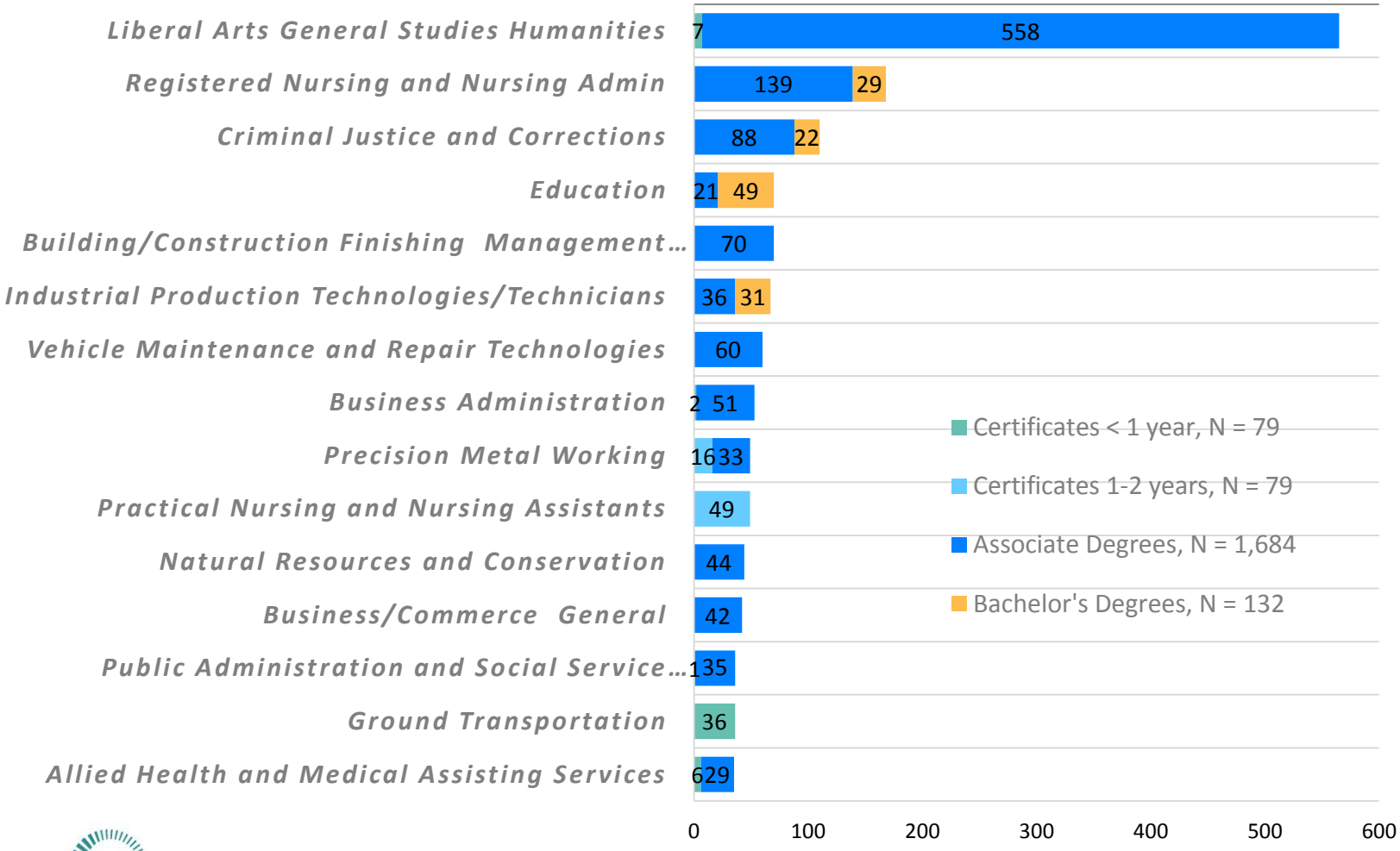
STRATEGIES FOR REGIONAL DEVELOPMENT

Statewide Two- and Four-Year Colleges

TOP 15 PROGRAMS OF STUDY, VINCENNES UNIVERSITY, BY TOTAL CREDENTIALS AWARDED, 2013



Source: National Center for Education Statistics, IPEDS, 2014.

Statewide Two- and Four-Year Colleges

DEFINITIONS AND TECHNICAL NOTES, Postsecondary Institutions

All data on postsecondary credentials are from the U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) for 2013.

As noted, the colleges and universities presented in Appendix A meet the following criteria:

- they are all publicly-funded institutions of postsecondary education in Indiana;
- they are commonly identified as serving students and communities across the state; and,
- they are large educators of graduate and undergraduate students (each has an enrollment of at least 12,000 students).

Each of these "statewide" institutions were included in the regional analyses to provide the Work Councils with information on the scale and potential talent supply in their regions from these schools. These colleges and universities play a dual role as part of a local talent supply as well as serving statewide, national, and international student markets.

For more detailed discussion of the employment patterns of Indiana college graduates and their likelihood of remaining employed in the state after graduation, see reports by the Indiana Business Research Center, Indiana University, such as "How Education Pays: The Work Outcomes of Indiana's Postsecondary Graduates," November, 2011, and a report commissioned by the Central Indiana Corporate Partnership, "Competitive Economic Advantage: The Opportunity to Win the Global Competition for College Educated Talent," July, 2013.

APPENDIX B

List of All Public and Private Colleges in Supply Analysis

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STRATEGIES FOR REGIONAL DEVELOPMENT

APPENDIX B

List of All Public and Private Colleges in Supply Analysis

Anderson University
Aviation Institute of Maintenance-Indianapolis
Ball State University
Bethany Theological Seminary
Bethel College-Indiana
Brown Mackie College-Fort Wayne
Brown Mackie College-Indianapolis
Brown Mackie College-Merrillville
Brown Mackie College-Michigan City
Brown Mackie College-South Bend
Butler University
Calumet College of Saint Joseph
Chamberlain College of Nursing-Indiana
Christian Theological Seminary
Concordia Theological Seminary
DePauw University
DeVry University's Keller School of Management
DeVry University-Indiana
DeVry University-Indiana
Earlham College
Everest College-Merrillville
Fortis College-Indianapolis
Franklin College
Goshen College
Grace College and Theological Seminary
Hanover College
Harrison College-Indianapolis
Holy Cross College
Huntington University
Indiana State University
Indiana University-Bloomington
Indiana University-East
Indiana University-Kokomo
Indiana University-Northwest
Indiana University-Purdue University-Fort Wayne
Indiana University-Purdue University-Indianapolis
Indiana University-South Bend
Indiana University-Southeast
Indiana Wesleyan University
International Business College-Fort Wayne
International Business College-Indianapolis
ITT Educational Services Inc-System Office
ITT Technical Institute-Fort Wayne
ITT Technical Institute-Indianapolis
ITT Technical Institute-Indianapolis East
ITT Technical Institute-Merrillville
ITT Technical Institute-Newburgh
ITT Technical Institute-South Bend
Ivy Tech Community College
Kaplan College-Hammond
Kaplan College-Indianapolis
Lincoln College of Technology-Indianapolis
Manchester University
Marian University
Marion Schools-Tucker Career & Technology Center
Martin University
MedTech College
MedTech College-Ft Wayne Campus
National American University-Indianapolis
Oakland City University
Ottawa University-Jeffersonville
Purdue University-Calumet Campus
Purdue University-Main Campus
Purdue University-North Central Campus
Rose-Hulman Institute of Technology
Ross Medical Education Center-Fort Wayne
Ross Medical Education Center-Kokomo
Saint Elizabeth School of Nursing
Saint Josephs College
Saint Mary's College
Saint Mary-of-the-Woods College
Saint Meinard School of Theology
Sanford-Brown College-Indianapolis
Strayer University-Indiana
Taylor University
The Art Institute of Indianapolis
Trine University
Trine University-Regional
University of Evansville
University of Indianapolis
University of Notre Dame
University of Phoenix-Indianapolis
University of Saint Francis-Fort Wayne
University of Southern Indiana
Valparaiso University
Vincennes University
Wabash College

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